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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,026	10/28/2003	Sunil Thomas	TI-29525.1A	5704

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EXAMINER	
BEREZNY, NEMA O	

ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,026	THOMAS, SUNIL	
	Examiner	Art Unit	
	Nema O Berezny	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-43* is/are pending in the application.

4a) Of the above claim(s) *36-43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/22/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Applicant's Response filed 9-7-04, which has been entered and considered by Examiner. Claims 24-43 are currently pending.

Election/Restrictions

Applicant's election with traverse of claims 24-35 in the reply filed on 9-7-04 is acknowledged. The traversal is on the ground(s) that the respective groups do not represent both independent and distinct inventions, and an undue burden on Examiner was not shown. This is not found persuasive. Applicant contends that independent inventions would be unconnected in design, operation or effect. Examiner disagrees. Independent invention(s) mean that the invention(s) are complete and can stand on their own merit; they do not have to be unconnected in design, operation or effect. An undue or serious burden to Examiner was shown in the restriction by the different classification of the two inventions, and by showing that certain elements of one invention were not present in the other invention and therefore, additional searching for both inventions would be required for those additional elements.

The requirement is still deemed proper and is therefore made FINAL.

Specification

The abstract of the disclosure is objected to because it contains more than one paragraph. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 24, 27-28, 31, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Najafi et al. (WO 98/05935). Najafi discloses a packaged micromechanical device, comprising: a semiconductor chip (Figs.1a,2a,2f el.1) having an integrated circuit including a plurality of micromechanical components (el.4) configured in a plane in the central portion of a first surface of said chip, and a plurality of terminals (el.10) disposed in peripheral portions of said first surface of said chip; an electrically insulating substrate (el.2) having first and second surfaces and an opening (el.3), said surfaces being substantially parallel to each other; a plurality of electrically conductive routing lines (el.8) integral with said substrate; a first plurality of contact pads (el.7) disposed on said first surface of said substrate, adjacent said opening and connected to at least one of said routing lines; a second plurality of contact pads (el.6) disposed on said first surface of said substrate, remote from said opening and connected to at least one of said routing lines; solder (el.5) electrically connecting said terminals in peripheral portions of said first surface of said chip to said first plurality of contact pads, such that said first surface of said chip covers said opening in said substrate; an encapsulant (el.14) between said first surface of said chip and said substrate around said opening, said encapsulant leaving a second surface of said chip

exposed; and a lid (el.27) adhered to said second surface of said substrate covering said opening in said substrate **[claim 24]**. Najafi also discloses wherein said insulating substrate is made of ceramic having a single level metallization (Fig.1a; p.6 lines 9-10) **[claim 27]**; wherein said conductive routing lines and said first and second pluralities of contact pads are in said single level metallization (Fig.1a) **[claim 28]**; wherein said solder is selected from a group consisting of lead/tin, indium, tin/indium, tin/silver, tin/bismuth, solder paste, and solder-coated spheres (p.6 lines 16-18) **[claim 31]**; and having a plurality of solder balls (el.5') disposed on said second plurality of contact pads (Fig.1b) **[claim 35]**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 25-26, 29-30, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Najafi as applied to claim 24 above, and further in view of Fisher et al. (5,936,758). Najafi does not disclose a digital micromirror device, a passivant, or a glass plate. However, Najafi would look to one such as Fisher for a deformable element, lubricated micromechanical parts, and a transparent lid. Fisher discloses wherein said micromechanical device is a digital micromirror device, and wherein said micromechanical components are micromirrors (col.1 lines 33-39). Therefore, it would

have been obvious to a person of ordinary skill in the art at the time of the invention to use the micromirrors or digital micromirror device of Fisher with the device of Najafi in order to provide deformable micromechanical elements (Fisher – col.1 lines 58-62) **[claims 25, 26]**.

Fisher also discloses ridge-like protrusions (Fig.1 el.70) formed in said ceramic substrate and positioned under said lid, suitable for storing a passivant (Fig.1). Therefore, it would have been obvious to a person or ordinary skill in the art at the time of the invention to use the protrusions of Fisher with the device of Najafi in order to provide a non-electrical surface for storing a material to lubricate moving parts (col.1 lines 25-33; col.6 lines 25-34) **[claim 29]**. Fisher also discloses wherein said passivant is a pill or granular material suitable for gradual release to continuously coat contacting surfaces of said micromechanical components (col.6 lines 30-34). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the passivant of Fisher with the device of Najafi in order to provide continuously coated or lubricated micromechanical surfaces (col.6 lines 35-37) **[claim 30]**.

Fisher also discloses wherein a lid is a plate made of glass or any other material transparent to light in the visible range of the electromagnetic spectrum (col.1 lines 33-39; col.6 line 42). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the glass plate of Fisher with the device of Najafi in order to provide a sealed package for light sensor devices **[claim 33]**.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Najafi as applied to claim 24 above, and further in view of Shiobara et al. (6,310,120). Najafi discloses an encapsulant (p.6 lines 22-24), but Najafi does not disclose an epoxy encapsulant filled with silica and anhydrides. However, Najafi would look to one such as Shiobara for a curing agent and to reduce the coefficient of thermal expansion (CTE) because Shiobara discloses wherein said encapsulant comprises an epoxy-based material filled with silica and anhydrides (col.2 lines 56-64; col.3 lines 38-49). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the encapsulant of Shiobara with the device of Najafi in order to provide a reduced CTE (col.3 lines 43-45) and to provide a curing agent (col.2 lines 56-64).

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Najafi as applied to claim 24 above, and further in view of Karpman et al. (6,534,340). Najafi does not disclose adhering said lid to said substrate. However, Najafi would look to one such as Karpman for fabrication flexibility because Karpman discloses wherein said lid is adhered to said second substrate surface by an epoxy adhesive (col.3 lines 35-45). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the adhesive of Karpman with the device of Najafi because said adhesive can be applied to either the chip or the substrate surfaces (col.4 lines 37-51).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O Berezny whose telephone number is (571) 272-1686. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NB

Nema Berezny